Abstract of the Disclosure
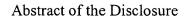
A scheduler for a finite capacity process provides a schedule based on an integrated assessment of both discrete and continuous constraints. Given a list of products to be provided, the scheduler generates a set of activities required to produce the products and identifies resources required and the discrete and continuous constraints related to such resources. Activities are resized, and timelines are established for the activities as a function of deadlines for the product delivery for which the activities are related. Resource balancing heuristics are used to redistribute resource utilization to prevent bottlenecks. Data structures are used to keep track of constraints. Both discrete and continuous constraints are defined. Separate solver engines for the discrete and continuous constraint problems modify the constraints. The data structures are used to share and propagate constraints between the two engines. Infeasibilities of meeting product delivery times are detected during the scheduling and backtracking and rescheduling of resources based on under and over utilization and availability of equivalent resources is performed.